Abdulrahman Saeed Baasha et al, 2020;4(2):454–460.
https://doi.org/10.24911/IJMDC.51-1577288335

ORIGINAL ARTICLE

Parents' knowledge and practices about child eye health care in Saudi Arabia

Abdulrahman Saeed Baashar[1*], Ammar Adnan M. Bin Yaseen[2], Mohammed Aiman Halawani[2], Waleed Ibrahim Alharbi[2], Ghaith Adel Alhazmi[2], Sultan Sameer Alam[1], Mohanid Fahd Tirkistani[2], Essam Eldin Mohamed Nour Eldin[3]

ABSTRACT

Background: The visual system of children is immature when born. For healthy vision development to occur, images transmitted to the higher centers must be clear and appropriately focused. A failure in vision development may get unnoticed unless there is an eye examination. This could result in reduced vision, which may be difficult to correct. This survey analysis aims at determining the knowledge and practices of parents about child eye health care in the public sector in Saudi Arabia.

Methodology: A self-administered structured questionnaire was randomly distributed among parents of children attending public school. The questionnaire included questions on the knowledge and practice about eye care in addition to socio-demographic data. Data analysis was done through statistical package for the social sciences program version 22.

Results: Parents aging less than 20-year old had better knowledge (2.30 ± 1.418) with p-value = 0.508. Also, university graduates had a better level of knowledge toward eye care (3 ± 1.325) with *p*-value = 0.06. Also, parents who took their children for an eye examination had a better level of knowledge (2.33 ± 1.818) with *p*-value = 0.207. However, the overall level of knowledge of parents was considered below average (2.03 ± 1.692) with a maximum score of 7.

Conclusion: The level of knowledge of parents toward eye care of children in Saudi Arabia is considered unsatisfactory. Further studies with larger sample size are required.

Keywords: Knowledge; practices; child eye health; Saudi Arabia.

Introduction

In the developing world, visual impairment and blindness in children are usually caused by avoidable and treatable conditions [1]. These limit their access to education and job opportunities, influencing their productivity and quality of life negatively [2].

A major factor in childhood blindness is a lack of knowledge about preventative and promotive eye care measures among parents and guardians as well as knowledge of where to access appropriate care [3].

About 500,000 children become blind, yearly, with 1.5 million already blind, the rate is five times higher in the poor regions compared to wealthy areas. Also, it is estimated that every minute a child goes blind with 60% dying within a year after becoming blind [4].

According to a report, about 1.3 million blind children live in Africa (18%) [4] with a low refractive error (RE) (1.8%) in most African countries, which is too small to justify the prioritization of RE screening only [5].

Studies about awareness of eye care have been performed in developed and developing countries and reported that a lot of people seek timely eye care to reduce the burden of blindness, even among children [6]. The lacks of human resources and facilities and ineffective policies have also

Correspondence to: Abdulrahman Saeed Baashar
*King Saud Bin Abdulaziz University for Health Sciences, Jeddah, Saudi Arabia.
Email: baashar10.a@gmail.com
Full list of author information is available at the end of the article.
Received: 25 December 2019 | **Accepted:** 08 January 2020

been suggested as possible causative factors, particularly in low-income countries [2].

The absence of programs aimed at identifying children who require examination, referral, treatment, or rehabilitation in communities and schools adds a cost burden on parents, guardians, and caregivers [7].

Subjects and Methods

A cross-sectional study conducted among randomly selected parents aged between 25 and 45 years old, whose children attended public schools in Saudi Arabia. Sampling methodology and quantitative analysis were conducted using a validated questionnaire to investigate the knowledge and practices of parents about child eye health care in the public sector in Saudi Arabia. The questionnaire was pilot tested on respondents that were not included in the final study sample, and a statistician provided support with the use of appropriate data analysis techniques.

The semi-structured survey consisted of three sections, which included general and demographics questions, knowledge about eye care, and practice about eye care. The survey was distributed by research assistants who were knowledgeable about the content of the survey. All questions, requiring positive and negative responses, included a space to allow parents to state reasons why a particular response was chosen to eliminate errors and bias.

Statistical package for the social sciences program, version 22.0, was used for data analysis. Descriptive statistics were done. A *p*-value of 0.05 or less was considered as significant.

Results

Ninety-seven participants responded to the online questionnaire in this study. Only parents who completed all the questions in the survey were included. Socio-demographics of participants and analysis of the questionnaire are shown below.

Out of 97 participants, age was subcategorized into five groups on a scale of 10 years, starting with less than 20 years old and ending with more than 50 years old. Most of the parents (41.2%) belonged to the age group between 21 and 30 years old. On the other hand, the age group who were less than 20 years old had the least number of parents with only 10.3% of responses.

Turning to the gender of parents, males constituted 45.4% of participants, while females were 54.6%. The educational level was also evaluated; 79.4% had a university degree or higher, while only 1% had an intermediate certification, and 1% was illiterate. All socio-demographic data are shown in detail in Table 1.

Parents were asked if they had taken their children before for an eye examination. Among the responders, 52.6% mentioned that they took their children for an eye examination, while 37.1% of parents did so before going to school. Also, 52.6% of parents mentioned that they did not take their children for an examination because they did not know that their children may need to be examined, while 61.9% of parents believed that there was no need for the examination.

Table 1. *Socio-demographic characters of participants.*

	Frequency (*N*)	Percent (%)
Gender		
Female	53	54.6
Male	44	45.4
Age		
<20-year old	10	10.3
21 to 30 years old	40	41.2
31 to 40 years old	20	20.6
41 to 50 years old	15	15.5
More than 50-year old	12	12.4
Educational level		
Illiterate	1	1.0
Secondary education	17	17.5
University degree or higher	77	79.4
Intermediate	1	1.0
Marital status		
Divorced	5	5.2
Married	61	62.9
Single	30	30.9
Widow	1	1.0

Additionally, 69.1% of parents believed that their children saw well, and 15.5% of parents could not find specialized eye care clinics nearby them. All responses are detailed in Table 2.

Parents were asked about their knowledge of eye care and visual impairment. Among the participants, 24.7% mentioned that they have a child who was born blind or visually impaired. Also, 12.4% of parents had advice from a doctor regarding blindness and visual impairment. About 48.5% of parents thought that blind children could not learn, while 54.6% of parents believed that blind children could cope with their peers.

Additionally, 42.3% of parents agreed that blind children are usually annoyed by their peers, and 42.3% of parents did not know any school for visually impaired children. All responses are explained in Table 3.

Parents were also asked about their children and if they wear glasses. Among the participants, 55.7% of parents denied that their children wear glasses, while 42.3% of parents mentioned that they would not have any problem if their children needed to wear glasses, as shown in Table 4.

Parents were also asked if they would accept that their children undergo an eye operation if needed. Among the

Table 2. *Responses toward the previous examination.*

		Frequency (*N*)	Percent (%)
Have you ever taken your child for an eye examination?	No	33	34.0
	I don't know	12	12.4
	Yes	51	52.6
If yes, was that before going to school?	No	34	35.1
	I don't know	10	10.3
	Yes	36	37.1
I did not know that my son needed to be examined	No	25	25.8
	I don't know	18	18.6
	Yes	51	52.6
There was no need for examination	No	21	21.6
	I don't know	12	12.4
	Yes	60	61.9
The child saw well	No	14	14.4
	I don't know	12	12.4
	Yes	67	69.1
Financial restrictions prevented me	No	70	72.2
	I don't know	11	11.3
	Yes	11	11.3
There are no specialized eye care clinics	No	58	59.8
	I don't know	20	20.6
	Yes	15	15.5
Only elderly people have eye problems	No	64	66.0
	I don't know	11	11.3
	Yes	17	17.5

Table 3. *Response on parents' knowledge about eye care and education for visually impaired or blind children.*

		Frequency (*N*)	Percent (%)
In your family, are there any children born blind or visually impaired?	I don't know	9	9.3
	Yes	24	24.7
	No	64	66.0
If the answer is No, did a doctor explained to you the cause of blindness or visual impairment?	I don't know	24	24.7
	Yes	12	12.4
	No	33	34.0
Are visually impaired children and/or blind children attending school?	I don't know	30	30.9
	Yes	49	50.5
	No	15	15.5
Without vision, can children still learn?	I don't know	19	19.6
	Yes	27	27.8
	No	47	48.5
A blind child cannot cope with his peers	I don't know	23	23.7
	Yes	18	18.6
	No	53	54.6
The child will be annoyed by his peers	I don't know	27	27.8
	Yes	41	42.3
	No	25	25.8
Do you know any school for visually impaired or blind children	I don't know	28	28.9
	Yes	26	26.8
	No	41	42.3

Table 4. *Responses of parents toward wearing glasses.*

		Frequency (*N*)	Percent (%)
Do any of your children wear glasses?	No	54	55.7
	I don't know	6	6.2
	Yes	36	37.1
If No, Do you have any problem if any of your children required wearing glasses?	No	41	42.3
	I don't know	14	14.4
	Yes	17	17.5

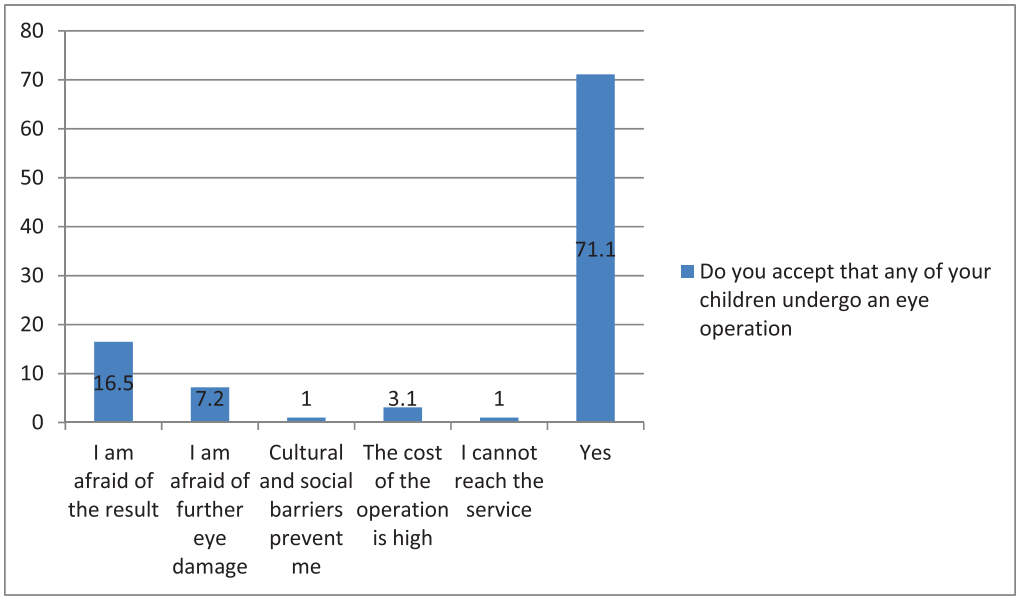

Figure 1. *Acceptance of parents toward undergoing an eye operation for their children if needed.*

responders, 71.1% of parents mentioned that they would agree for the operation, while 1% of parents mentioned that cultural and social barriers would prevent them from accepting the operation, as shown in Figure 1.

Parents were also asked about their source of information about eye care. Among the participants, 37.1% of parents mentioned that their source was family doctors, while 1% of parents mentioned the radio as their source of information, as shown in Figure 2.

Finally, a score was calculated for all the questions evaluating the level of knowledge of parents toward eye care of children. The minimum score was zero, while the maximum score was seven. The mean score was 2.03±1.692.

The average of the total score was then compared over different demographic variables using a One-way analysis of variance (ANOVA) test at a level of significance p-value < 0.05. It was revealed that parents aging less than 20-year old had a higher mean score (2.30 ± 1.418) with p-value = 0.508. Also, university graduates had a higher score (3 ± 1.325) with p-value = 0.06, and parents who took their children for an eye examination had a higher score (2.33 ± 1.818) with p-value = 0.207. The full comparison is illustrated in Table 5.

Discussion

The visual system of children is immature when born. For healthy vision development to occur, images transmitted to the higher centers must be clear and appropriately focused [8]. A failure in vision development may go unnoticed unless there is an eye examination. This could result in reduced vision, which may be difficult to correct [9].

Blindness in children can be avoided with preventive measures, and with an eye examination and early treatment. In the developed world, children are required to undergo eye examination at birth and as early as six months of age [10]. By six months, an average child has attained several developmental milestones and so can undergo a full eye examination. Afterward, a comprehensive eye examination is necessary at the preschool age and frequently during the school-age [11].

The present study evaluated the level of knowledge of parents living in Saud Arabia toward their children's eye care and services provided to children with blindness or

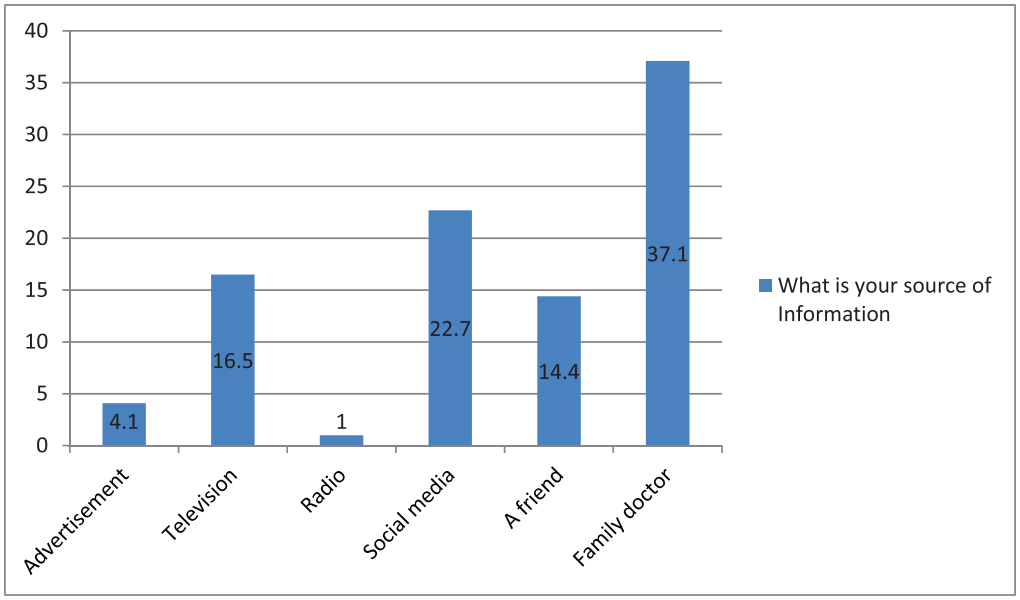

Figure 2. *Parents' sources of information on eye care.*

Table 5. *Comparison of mean knowledge score using one-way ANOVA.*

		Mean	SD	*p*-value
Age	<20-year old	2.30	1.418	0.508
	21- to 30-year old	2.20	1.772	
	31- to 40-year old	1.80	1.609	
	41- to 50-year old	2.27	1.624	
	More than 50-year old	1.33	1.875	
Educational level	Illiterate	0	0	0.060
	Secondary education	1.82	1.684	
	University degree or higher	3.00	1.325	
	Intermediate	3.00	1.458	
Have you ever taken your child for an eye examination?	No	1.85	1.439	0.207
	I don't know	1.25	1.658	
	Yes	2.33	1.818	

impaired vision. The study revealed that parents aging less than 20 years old had better knowledge (2.30 ± 1.418) (*p*-value = 0.508). Also, university graduates had a better level of knowledge toward eye care (3 ± 1.325) (*p*-value = 0.06),

Furthermore, parents who took their children for an eye examination had a better level of knowledge (2.33 ± 1.818) (*p*-value = 0.207). However, the overall level of knowledge of parents was considered below average (2.03 ± 1.692) with a maximum score of 7. It is worth to mention that the differences in levels of knowledge among parents could not reach statistical significance due to small sample size.

Parents' knowledge about children's eye care has been evaluated in a different setting. Sukati et al. [12] performed a cross-sectional study to determine the knowledge and practices of parents about child eye health care. The study concluded that out of 173 individuals, 104 (60.1%) parents mentioned that they have never had an eye examination for their children, and 69 (31.7%) thought that their children's vision was fine.

Sukati et al. [12] also showed that 97 (53.1%) parents were not aware of child eye conditions with no significant association between level of education and knowledge of eye conditions influencing children (p = 0.112). These findings are compliant with the outcomes of the present findings; however, Sukati et al. [12] included a larger sample size. The present study showed below-average awareness and knowledge of parents toward children's eye care regardless of the level of education.

Also, Amiebenomo et al. [13] performed a study to find out parents' knowledge and attitude toward eye

examination and treatment of their children. There was no significant association between parents' attitude to eye care and age, educational status, and the number of children for both parents. Most parents (60% of men and 66.7% of women) would seek eye check for their children only when they have an eye problem.

Similarly, the present study showed that the educational level did not correlate with the level of knowledge toward eye care in children with an unsatisfying level of knowledge observed among all levels of education. Also, 52.6% of the parents mentioned that they took their children for an eye examination, while 37.1% of parents did so before going to school.

Moreover, Ormsby et al. [14] performed a study to investigate how knowledge and attitudes influence access to eye-care services in Takeo Province, Cambodia. Ormsby et al. [14] concluded that the proportion of participants who reported having an awareness of specific eye conditions ranged from 97% for eye injury and 8% for the diabetic eye [14]. Although the present study did not classify eye problems and evaluated the knowledge about overall eye care, the level of knowledge of parents was unsatisfactory.

Additionally, the present study had some limitations; the small sample size resulted in a failure to detect a significant difference in the level of knowledge of parents among different variables. Furthermore, the little number of questions evaluating knowledge could decrease the reliability of the results. To our knowledge, this is the first study to evaluate the level of knowledge of the parents toward their children's eye care in Saudi Arabia; hence, we recommend more such studies in other parts of the country.

Conclusion

The level of knowledge and awareness of parents toward eye care in children in Saudi Arabia is considered unsatisfactory. However, further studies with a larger sample size are crucial to confirm the findings of the present study. Also, these findings should draw the attention of decision-makers in Saudi Arabia toward arranging awareness campaigns and educational sessions for parents in Saudi Arabia toward eye care of their children.

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

None.

Consent for publication

Informed consent was obtained from all the participants.

Ethical approval

Online survey was conducted after approval of King Saud Bin Abdulaziz University for Health Sciences.

Author details

Abdulrahman Saeed Baashar[1], Ammar Adnan M. Bin Yaseen[2], Mohammed Aiman Halawani[2], Waleed Ibrahim Alharbi[2], Ghaith Adel Alhazmi[2], Sultan Sameer Alam[1], Mohanid Fahd Tirkistani[2], Essam Eldin Mohamed Nour Eldin[3]

1. King Saud Bin Abdulaziz University for Health Sciences, Jeddah, Saudi Arabia
2. Umm AlQura University, College of Medicine, Makkah, Saudi Arabia
3. Professor of Clinical Biochemistry, Umm AlQura University, Makkah, Saudi Arabia

References

1. Siddiquie R. Manavseva crusade against childhood blindness. Int NGO J. 2009;4(5):253–5.
2. Borrel A, Dabideen R, Mekonen Y, Overland L. Child eye health in Africa: the status and way forward. The African Child Policy Forum. Cape Town, South Africa: ORBIS; 2013. pp 1–37.
3. Frazier M, Kleinstein RN. Access and barriers to vision, eye, and health care. Optometric care within the Public Health Community; 2009. Available at : https://www.scirp.org/(S(lz5mqp453edsnp55rrgjct55))/reference/ReferencesPapers.aspx?ReferenceID=1243977
4. Apple DJ, Ram J, Foster A, Peng Q. Blindness in the world. Survey Ophthalmol. 2001;45:S21–31. https://doi.org/10.1016/S0039-6257(00)00177-6
5. Congdon NG, Patel N, Esteso P, Chikwembani F, Webber F, Msithini RB, et al. The association between refractive cutoffs for spectacle provision and visual improvement among school-aged children in South Africa. Br J Ophthalmol. 2008;92(1):13–8. https://doi.org/10.1136/bjo.2007.122028
6. Dandona R, Dandona L, John RK, McCarty CA, Rao GN. Awareness of eye diseases in an urban population in southern India. Bull World Health Organ. 2001;79(2):96–102.
7. Mohammad AM. Finding children who are blind. Community Eye Health. 2007;20(62):30–1.
8. Gilbert C, Foster A. Childhood blindness in the context of VISION 2020: the right to sight. Bull World Health Organ. 2001;79:227–32.
9. American Optometric Association. Optometric clinical practice guideline: pediatric eye and vision examination. St Louis, MO: American Optometric Association; 2002.
10. World Health Organization. Preventing blindness in children: report of a WHO/IAPB scientific meeting; 2000 [cited 2019 Oct]. Available from: https://apps.who.int/iris/handle/10665/66663
11. Khandekar R, Epi PD. Visual disabilities in children including childhood blindness. Middle East Afr J Ophthalmol. 2008;15(3):129–34. https://doi.org/10.4103/0974-9233.51988
12. Sukati VN, Moodley VR, Mashige KP. Knowledge and practices of parents about child eye health care in the public sector in Swaziland. Afr J Primary Health Care Fam Med. 2018;10(1):1–13. https://doi.org/10.4102/phcfm.v10i1.1808

13. Amiebenomo OM, Achugwo DC, Abah I. Parental knowledge and attitude to children's eye care services. Niger J Paediatr. 2016;43(3):215–20. https://doi.org/10.4314/njp.v43i3.11

14. Ormsby GM, Arnold AL, Busija L, Mörchen M, Bonn TS, Keeffe JE. The impact of knowledge and attitudes on access to eye-care services in Cambodia. Asia Pac J Ophthalmol. 2012;1(6):331–5. https://doi.org/10.1097/APO.0b013e31826d9e06